



A fundamental research effort to discover and develop new materials that control the interactions between light, electricity, and heat at the nanoscale, for significantly improved efficiencies in solar energy conversion, solid-state lighting, and thermoelectrics for conversion of heat into electricity.

- New materials and methods for control of their internal nanostructure for high-efficiency, solution-processed, organic bulk heterojunction solar cells
- Semiconductor-based, multiple junction, thin film photovoltaics for 50% power conversion efficiency
- Bio-inspired, kinetically controlled, catalytic nanofabrication of heterojunction photovoltaics
- Semiconductor-based, nonpolar white light sources with luminous efficiencies >300 Lm/W
- Novel nanostructured thermoelectric materials with higher Seebeck coefficient and $ZT > 2.5$

